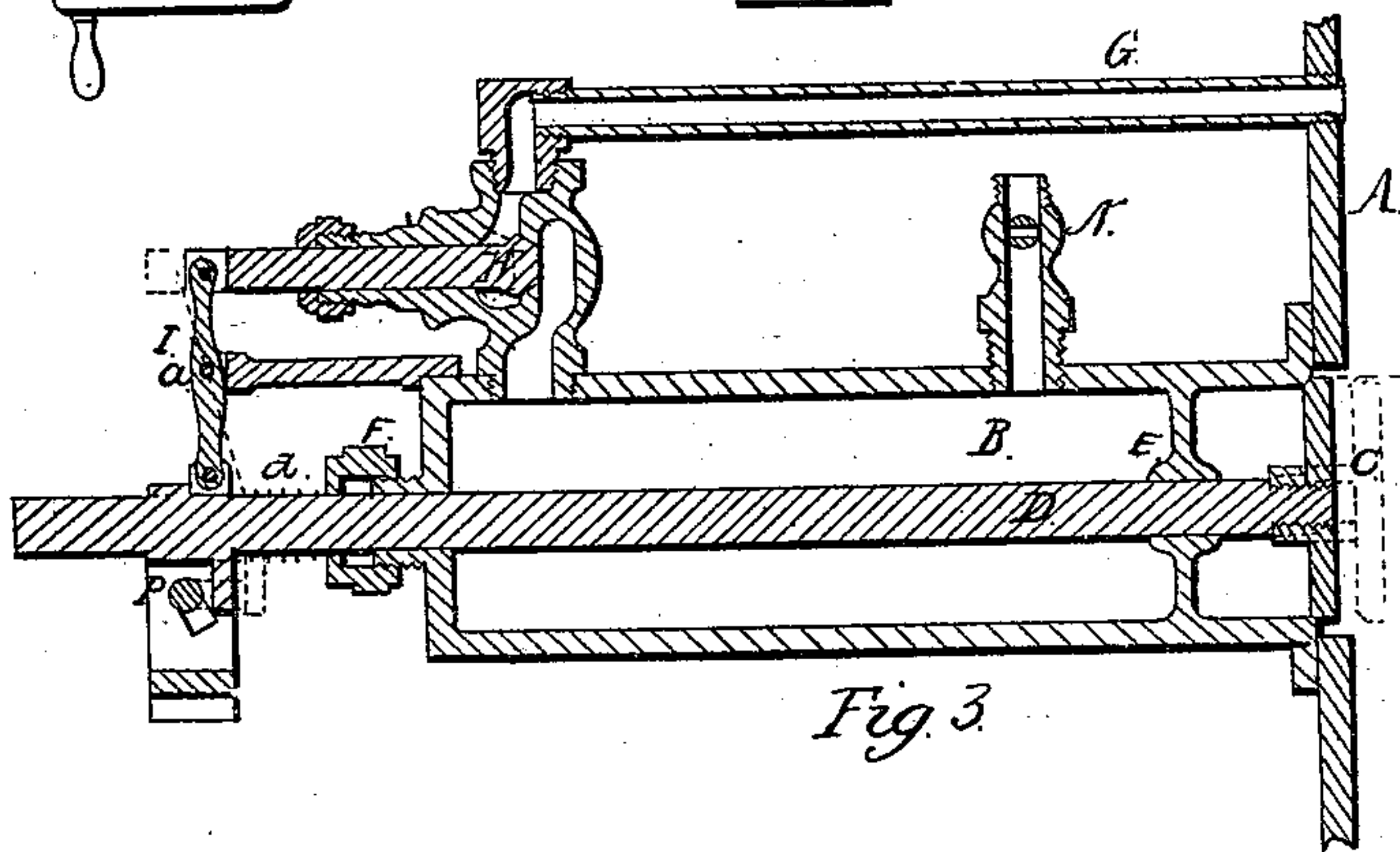
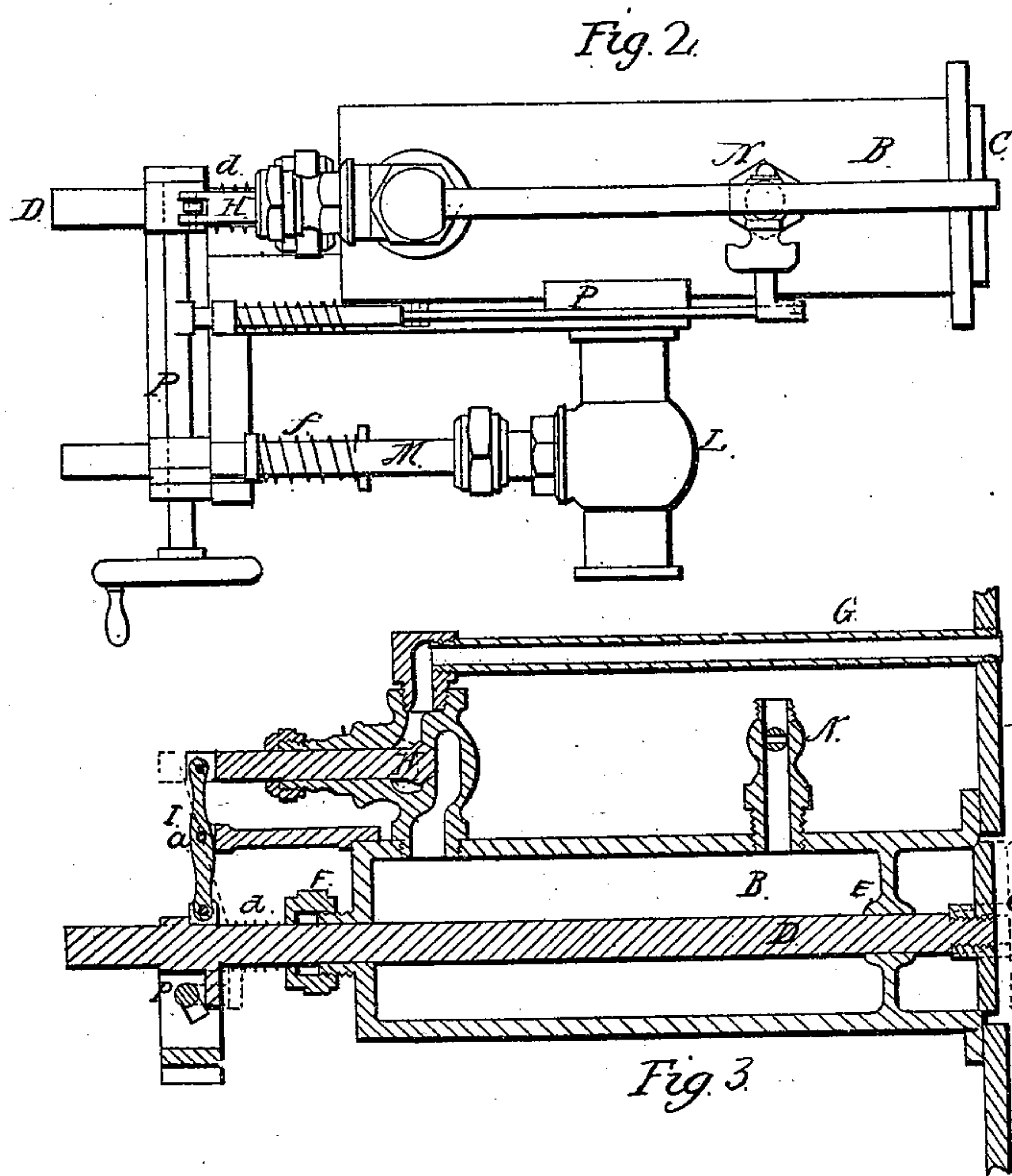
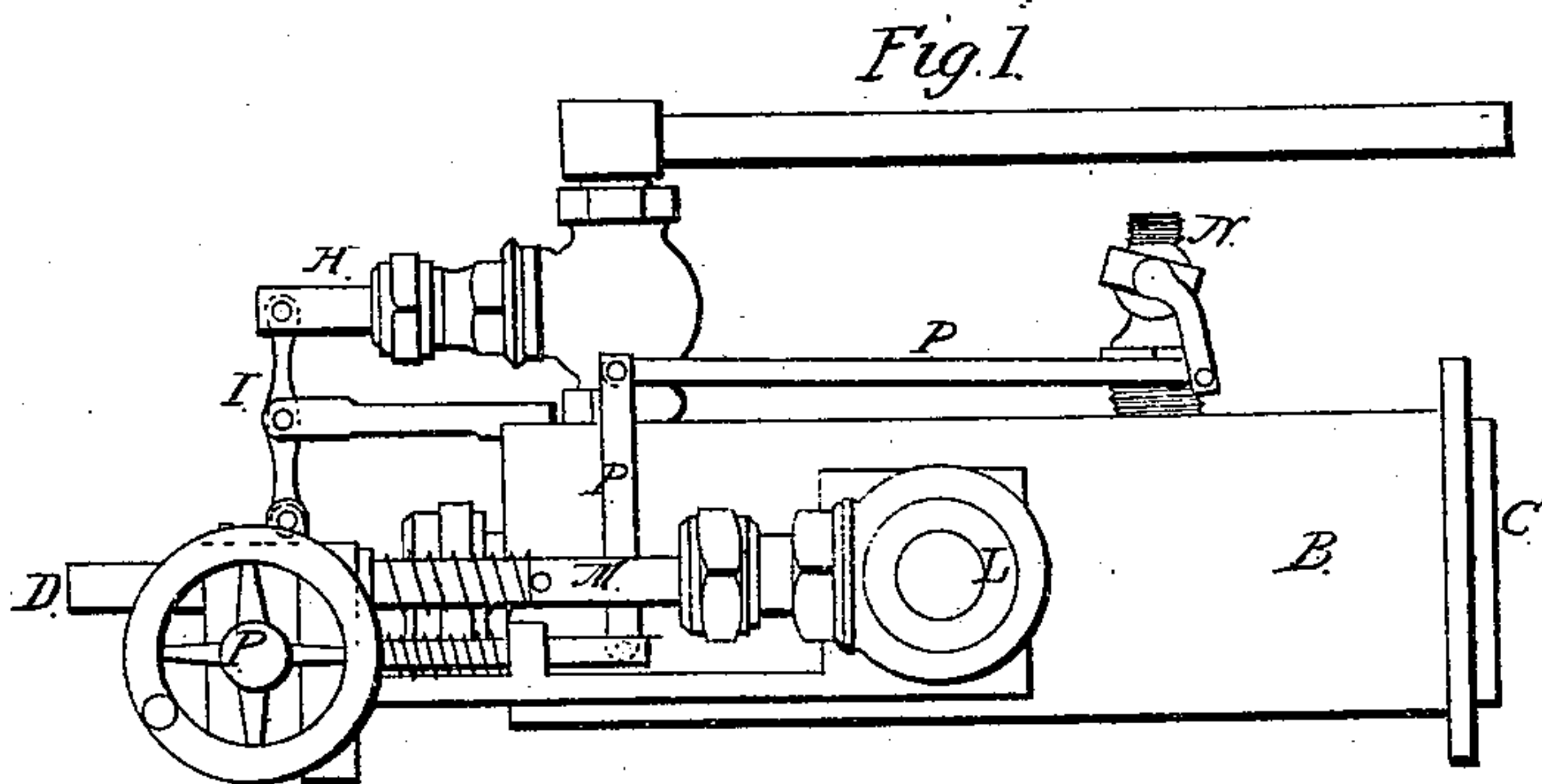


*H. Griffing.*

*Boiler Feeder.*

*No 85,655.*

*Patented Jan. 5, 1869.*



*Witnesses:*

*Michael Ryan  
a J Tibbitts*

*Inventor:  
H. Griffing  
By his Attorney.*

*John E. Earle*



# United States Patent Office.

HORACE GRIFFING, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO HIMSELF, JAMES A. EVARTS, AND DAVID STRONG, OF SAME PLACE.

Letters Patent No. 85,655, dated January 5, 1869.

## IMPROVED APPARATUS FOR FEEDING STEAM-GENERATORS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, HORACE GRIFFING, of New Haven, in the county of New Haven, and State of Connecticut, have invented a new Improvement in Apparatus for Feeding Steam-Boilers; and I do hereby declare the following, when taken in connection with the accompanying drawings, and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view;

Figure 2, a top view; and, in

Figure 3, a longitudinal vertical central section.

This invention relates to an improvement in apparatus for supplying water to steam-boilers, the object being to supply water to the boiler whenever it is needed, so as to positively maintain the same height of water in the boiler; and

The invention consists in the arrangement of a cylinder outside, and in immediate connection with, the boiler, at the water-line, the said cylinder being provided with a piston, to open and close the direct communication from the cylinder to the boiler, and also provided with a communication from above the water-line, and with a water-inlet valve, the several valves and pistons operating together by suitable mechanism, so that the water received into the said cylinder will flow into the boiler as fast as the water shall fall in the boiler.

To enable others to construct and use my improvement, I will proceed to describe the same as illustrated in the accompanying drawings.

A represents the boiler.

B, a cylinder, of suitable material, and in size proportionate to the boiler, and secured to the boiler at the water-line, as seen in fig. 3, the end toward the boiler communicating directly with the boiler through the sheet, and that end provided with a valve, C, arranged on a valve-rod, D, the said valve-rod supported in a bearing, E, within the cylinder, and in a stuffing-box, F, at the end of the cylinder, so that the valve C may be moved, to open and close the communication between the cylinder and boiler by means of the said valve-rod.

On the valve-rod D, at any convenient point, I arrange a spring, as seen at *d*, which acts to close the valve C.

Above, on the cylinder, at a point above the water-line, I arrange a tube, G, which communicates with the cylinder B through a valve, H, the said valve H being attached to the rod D through a lever, I, pivoted at *a*, so that both the valves, C and H, open at the same time; that is to say, when the valve-rod D is forced inward, to open the valve C, it withdraws the valve H from its seat, as denoted in red. Therefore, if the cylinder B be filled with water, and the valves

C and H open, the steam will pass, through the tube G, to the cylinder, while the cylinder communicates with the boiler at the valve C, thus establishing an equilibrium, so that the water in the cylinder B will fall to a level with the water in the boiler.

To supply the cylinder with water, I arrange a valve, L, to which the water-pipe is attached, the valve operated by a rod, M, so that, by the withdrawal of the rod, the valve is opened, to admit water in the cylinder B.

A spring, *f*, is arranged on the rod, to close the valve; and, in the upper side of the cylinder B, I arrange a valve, N, operated through lever P', so as to open at the same time that the valve L opens.

The several valves are operated, through proper connections, by a shaft, P, upon which are arranged cams, one to operate the valve-rod D, and, through that, the valve H, as seen in fig. 3, and other cams, to operate the valves L and N.

The operation of the apparatus thus constructed is as follows:

Supposing the water in the boiler to be below the water-line, denoted in blue, fig. 3, the shaft P, being caused to revolve, (and I prefer to keep this in constant revolution by power applied thereto in any convenient manner,) will open the valve L, and, at the same time, the valve N, the said valve N permitting air to escape from the cylinder, the operation of the cams being so as to close the two valves L and N so soon as the requisite quantity of water is admitted to the cylinder, or the cylinder full. Then the cam upon the shaft P actuates the valves C and H, so as to communicate with the boiler. The steam will pass into the cylinder B through the tube G, and, establishing an equilibrium in the cylinder with the boiler, the water in the cylinder will pass into the boiler. Then, the shaft still revolving, the valves C and H close, and, in their turn, the valves L and N again open, the steam escapes through the valve N, the cylinder is filled and discharged, as before, and so continuing until the water is raised to the proper level, when no more water will enter until the water in the boiler falls below the water-line. Therefore this apparatus will maintain the same level of water in the boiler under all circumstances.

Having thus fully described my invention,

What I claim as new and useful, and desire to secure by Letters Patent, is—

The arrangement of the cylinder B in communication with a steam-boiler, as described, and combining in itself the valves C and H and valves L and N, constructed and arranged so as to operate in the manner substantially as set forth.

HORACE GRIFFING.

Witnesses:

A. J. TIBBITS,  
MICHAEL RYAN.